



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/622,278	09/20/2000	Matthias Hartrumpf	31583-165338	8745
	7590	12/08/2003	EXAMINER	
Venable PO Box 34385 Washington, DC 20043-9998			SOHN, SEUNG C	
			ART UNIT	PAPER NUMBER
			2878	

DATE MAILED: 12/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/622,278	HARTRUMPF, MATTHIAS	
	Examiner	Art Unit	
	Seung C. Sohn	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-23 and 25-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-23 and 25-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 May 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. ***Claims 14-15, 28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. ("Correction algorithms in a laser scanning dimension measurement system", Pages 57-60, IEE Proceedings-A, Vol. 139, No. 2, March 1992).***

Referring to claim 14, Chang et al. shows in Fig. 1 the following elements of applicant's claim:

a) an emitter unit having a laser, a beam deflector unit and an optical emitter system, which define a scanning beam path as well as a scanning plane (Page 57, Col. 2, last paragraph);

b) a receiver unit including a photo detector disposed in the focal plane of an optical receiver system for a receiver beam path, the surface normal of said optical receiver system being parallel with the scanning beam path, the receiver unit receiving the beam after scanning the object and generating a signal (Page 58, Col. 1, 2nd paragraph); and

c) an electronic analyzing system (ancillary electronics) for determining the macroscopic geometric parameters from the signal .

Chang et al. shows as above, but does not disclose a dark field stop disposed ahead of said photo detector in the receiver beam path in the focal plane of said optical receiver system and a beam splitter. However, it would have been obvious to a person having ordinary skill in the art to provide a dark field stop for the purpose of preventing directly reflected near specular laser light and any light diffused by optical components from reaching the photodetector and a beam splitter for the purpose of redirecting the light beam.

Referring to claims 15 and 30, Chang et al. shows in Fig. 1 that the emitter unit and said receiver unit are disposed on the different side relative to the object to be measured. However, it would have been obvious to a person having ordinary skill in the art to provide the emitter unit and said receiver unit disposed on the same side relative to the object to be measured since the arrangement of the emitter unit and the receiver unit is a common structural provision taken by those skilled in the art for improving the efficiency of the system.

Referring to claim 28, it would have been obvious to a person having ordinary skill in the art to use the modified device of Chang et al. to control a production process since inspection and testing is desired in the production line, and by checking the component at various stages within the manufacturing process, each piece produced can be tested.

3. Claims 18-27 and 34-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. ("Correction algorithms in a laser scanning dimension measurement system", Pages 57-60, IEE Proceedings-A, Vol. 139, No. 2, March 1992) in view of Kobayashi (US Patent No. 5,691,839).

Referring to claim 18, Kobayashi shows in Fig. 3 additional receiver unit (36, i.e., photosensor) disposed at an angle different from 0 degree or 180 degree relative to an optical axis of the scanner unit in the scanning plane (Col. 8, lines 37-39).

Referring to claims 19-20, Kobayashi shows in Fig. 3 an optical system (5, i.e. dichroic mirror) arranged in the scanner beam path for splitting the scanning beam in the direction orthogonal on the scanning direction and a grid having lines oriented orthogonally with respect to the scanning direction (Col. 8, line 58-62).

Referring to claims 21-22, Kobayashi shows in Fig. 3 an optical system (2, i.e., beam-splitter) arranged in the scanner beam path for splitting the scanning beam in the direction parallel with the scanning direction and a grid having lines oriented parallel with respect to the scanning direction (Col. 5, line 16).

Referring to claim 23, Kobayashi shows in Fig. 1 optical elements (25p, i.e., polarizing plate) disposed in the scanning beam path and/or the receiver beam path for radiation of different polarization (Col. 6, line 25).

Referring to claim 24, the modified device of Kobayashi discloses as above, but is silent as to whether the optical elements comprise at least one of a polarizing beam splitter, a Wollaston prism, and a retarding plate of a Glan-Thomson prism. It would have been obvious to a person having ordinary skill in the art to provide those optical

elements in the device of Marxer et al. since the use of those well known optical elements is a common structural provision taken by those skilled in the art for improving the efficiency of the system.

Referring to claim 25, Kobayashi shows in Fig. 1 filters (25F, i.e. wavelength filter) selective in terms of wavelength disposed in the receiver beam path (Col. 6, line 37).

Referring to claim 26, Kobayashi discloses said filters are color filters (i.e., wavelength filters) (Col. 6, line 37).

Referring to claim 27, Kobayashi et al. shows in Fig. 1 that the emitter unit (1, 4, 14) and the receiver unit (26) form a single combination unit and a reference beam path is realized in the combination unit, in the outside space or by means of a light guide, which is superimposed by the beam path coming from the object (15) to be measured in such a way that the resulting interference pattern which varies locally and in the course of time is detected by means of at least one detector element (31, photosensor) (Col. 7, lines 5-12).

Referring to claims 34-35, Kobayashi shows in Fig. 3 an optical system arranged in the scanner beam path for splitting the scanning beam in the direction orthogonal on the scanning direction a grid having lines oriented orthogonally with respect to the scanning direction (Col. 8, line 58-62). It would have been obvious to a person having ordinary skill in the art to provide a splitter of Kobayashi in the device Chang et al. since the arrangement of an optical system using a splitter is a common

structural provision taken by those skilled in the art for performing the specific types of measuring operations as taught by Kobayashi.

Referring to claims 36-37, Kobayashi shows in Fig. 3 an optical system (2, i.e., beam-splitter) arranged in the scanner beam path for splitting the scanning beam in the direction parallel with the scanning direction a grid having lines oriented parallel with respect to the scanning direction (Col. 5, line 16). It would have been obvious to a person having ordinary skill in the art to provide a splitter of Kobayashi in the device Chang et al. since the arrangement of an optical system using a splitter is a common structural provision taken by those skilled in the art for performing the specific types of measuring operations as taught by Kobayashi.

4. Claims 16-17 and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. ("Correction algorithms in a laser scanning dimension measurement system", Pages 57-60, IEE Proceedings-A, Vol. 139, No. 2, March 1992) in view of Musto et al. (US Patent No. 4,432,648).

Referring to claim 16, the modified device of Chang et al. discloses as above, but does not disclose a retro reflector unit arranged behind the object to be measured. Musto et al. shows in Fig. 1 retro reflectors (28, 53 and 54) (Col. 3, lines 16-24 and Col. 4, lines 32-35). Therefore, it would have been obvious to a person having ordinary skill in the art to provide a retro reflector unit of Musto et al. in the modified device of Chang et al. since the use of a retro reflector unit is a common structural provision taken by

those skilled in the art for performing the specific types of measuring operations as taught by Musto et al.

Referring to claim 17, it would have been obvious to a person having ordinary skill in the art to provide a retro reflector unit of Musto et al. in the modified device of Chang et al. since the use of a retro reflector unit is a common structural provision taken by those skilled in the art for performing the specific types of measuring operations as taught by Musto et al.

Referring to claim 31-33, Chang et al. discloses as above, but does not disclose a retro reflector unit arranged behind the object to be measured. Musto et al. shows in Fig. 1 retro reflectors (28, 53 and 54) (Col. 3, lines 16-24 and Col. 4, lines 32-35). Therefore, it would have been obvious to a person having ordinary skill in the art to provide a retro reflector unit of Musto et al. in the device of Chang et al. since the use of a retro reflector unit is a common structural provision taken by those skilled in the art for performing the specific types of measuring operations as taught by Musto et al.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim 29 is rejected under 35 U.S.C. 102(b) as being anticipated by Chang et al. ("Correction algorithms in a laser scanning dimension measurement system", Pages 57-60, IEE Proceedings-A, Vol. 139, No. 2, March 1992).

Referring to claim 29, Chang et al. shows in Fig. 1 the following elements of Applicant's claim:

a) an emitter unit having a laser, a beam deflector unit and an optical emitter system, which define a scanning beam path as well as a scanning plane (Page 57, Col. 2, last paragraph);

b) a receiver unit including a photo detector disposed in the focal plane of an optical receiver system for a receiver beam path, the surface normal of said optical receiver system being parallel with the scanning beam path and said photo detector being a photo diode array, the receiver unit receiving the beam after scanning the object and generating a signal (Page 58, Col. 1, 2nd paragraph); and

c) an electronic analyzing system (ancillary electronics) for determining the macroscopic geometric parameters from the signal .

Response to Arguments

7. Applicant's arguments filed on September 17, 2003 have been fully considered but they are not persuasive.

Referring to claim 15, Applicant argues that the motivation of using dark field stop is not obvious, and the main purpose of dark field stop is to block the central laser path,

i.e., the direct laser beam. However, the examiner disagrees the argument. The dark field stop could be used with the different purpose, such as preventing directed reflected near specular laser light, since the dark field stop is notoriously well-known and widely-used element in this art. Also, Applicant didn't claim that the purpose of dark field stop is to block the central laser path.

Referring to claim 29, Applicant argues that the Chang et al. reference does not disclose a photodiode array since the photodetector is a single photodiode. However, the examiner disagrees the argument. Chang et al. clearly discloses the photodiode array since the single photodiode is still 1x1 photodiode array.

It should be noted that it is the claims that define the claimed invention, and it is the claims, not the specification, that are anticipated or unpatentable.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Application/Control Number: 09/622,278
Art Unit: 2878

Page 10

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

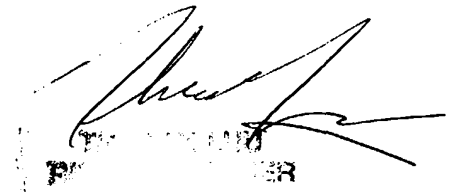
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seung C. Sohn whose telephone number is (703) 308-4093. The examiner can normally be reached on Monday through Friday from 8:30 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (703) 308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

SCS

SCS
December 1, 2003



DAVID PORTA
SUPERVISOR